

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of

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**A National Broadband Plan
for Our Future**

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GN Docket No. 09-51

To: The Commission

**REPLY COMMENTS OF THE
30 MHZ PIPELINE COMPANY ALLIANCE**

**Enbridge Inc.
EPCO, Inc.**

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Enbridge Inc. and EPCO, Inc. (collectively, the “*30 MHz Pipeline Company Alliance*” or “*Alliance*”), by their undersigned counsel and pursuant to Section 1.415 of the rules and regulations of the Federal Communications Commission (“FCC” or “Commission”), 47 C.F.R. § 1.415, appreciate the opportunity to submit these Reply Comments in the above-captioned proceeding.

Comments filed by several energy-related trade organizations, including the American Petroleum Institute (“API”), the Utilities Telecom Council (“UTC”) and Edison Electric Institute (“EEI”), and the National Rural Electric Cooperative Association (“NRECA”) have cited a need for additional spectrum to support the broadband communications needs of critical infrastructure industry (“CII”) companies like oil and gas companies and electric utilities.¹ UTC/EEI and NRECA propose specifically the reallocation for CII use of 30 MHz of spectrum in the 1800-1830 MHz band that is currently allocated for use by the federal government.²

¹ Comments of API at 4-7 (June 8, 2009); Comments of UTC and EEI at 7-9 (June 8, 2009); Comments of NRECA at 11-13 (June 8, 2009).

² Comments of UTC and EEI at 10-11; Comments of NRECA at n.31.

I. SUMMARY

The *30 MHz Pipeline Company Alliance* strongly supports these reallocation proposals and respectfully submits these Reply Comments to explain in graphic, “real-world” detail, why additional spectrum is urgently needed to support not only future efficiency improvements and security requirements, but also simply to maintain the current level of oil and gas industry communications activity. As illustrated in detail below, there is currently a vast amount of data that oil and gas pipeline companies must transmit constantly to monitor and control their gathering, transportation and storage systems. Although this information has become essential to enable the industry to transport oil, gas and other essential products safely and efficiently, the continuing rapid saturation of availability broadband spectrum has already rendered even this existing monitoring and control problematic. The reallocation of 30 MHz of broadband spectrum for dedicated CII use will ensure that the existing level of operational efficiencies can continue and will enable oil and gas pipeline companies to apply existing technologies to more locations, to expand their broadband applications to include voice and mobile data transmissions, and to take advantage of rapidly developing future monitoring and control technologies.

Allocating additional spectrum for oil and gas pipeline uses will improve national security, promote safety and environmental protection, improve operating efficiencies, and reduce costs associated with all of the gasoline, natural gas and numerous petroleum-related products that eventually are delivered to homes, local service stations and retail shelves across the nation, not to mention that supply power to entire communities and to the nation’s commercial and industrial facilities.

In short, these Reply Comments will explain in real world terms how the reallocation of 30 MHz of spectrum for oil and gas pipeline broadband communications use will improve

efficiencies in energy production and distribution, as requested by the Notice of Inquiry,³ and “advanc[e] ... energy independence and efficiency,” as required by the American Recovery and Reinvestment Act of 2009.⁴

II. INTRODUCTION

The *30 MHz Pipeline Company Alliance* is composed of Enbridge, Inc. and EPCO, Inc., two oil and gas pipeline companies that gather natural gas and then deliver that gas and other petroleum products via extensive pipeline networks. The following is a brief description of the these two pipelines.

Enbridge, Inc. operates the world’s longest crude oil and liquids pipeline system. It also is involved in natural gas transmission through pipelines and various U.S. assets that transport, gather, process and market natural gas and other petroleum products. Its crude oil and liquids pipeline systems deliver more than two million barrels per day of crude oil and liquids and cover approximately 8,500 miles. The Alliance and Vector onshore natural gas pipelines collectively extend approximately 2,200 miles, and Enbridge Offshore Pipelines has interests in 11 transmission and gathering pipelines in Louisiana and Mississippi offshore waters of the Gulf of Mexico that normally transport about 2.0 billion cubic feet of natural gas per day - approximately half of all deepwater Gulf of Mexico natural gas production. Enbridge also owns and operates Canada’s largest natural gas distribution company and distributes gas to 1.9 million customers in Ontario, Quebec and New York State.

³ *In re A National Broadband Plan for Our Future*, Notice of Inquiry, FCC 09-31, GN Docket No. 09-51, at ¶ 86 (2009).

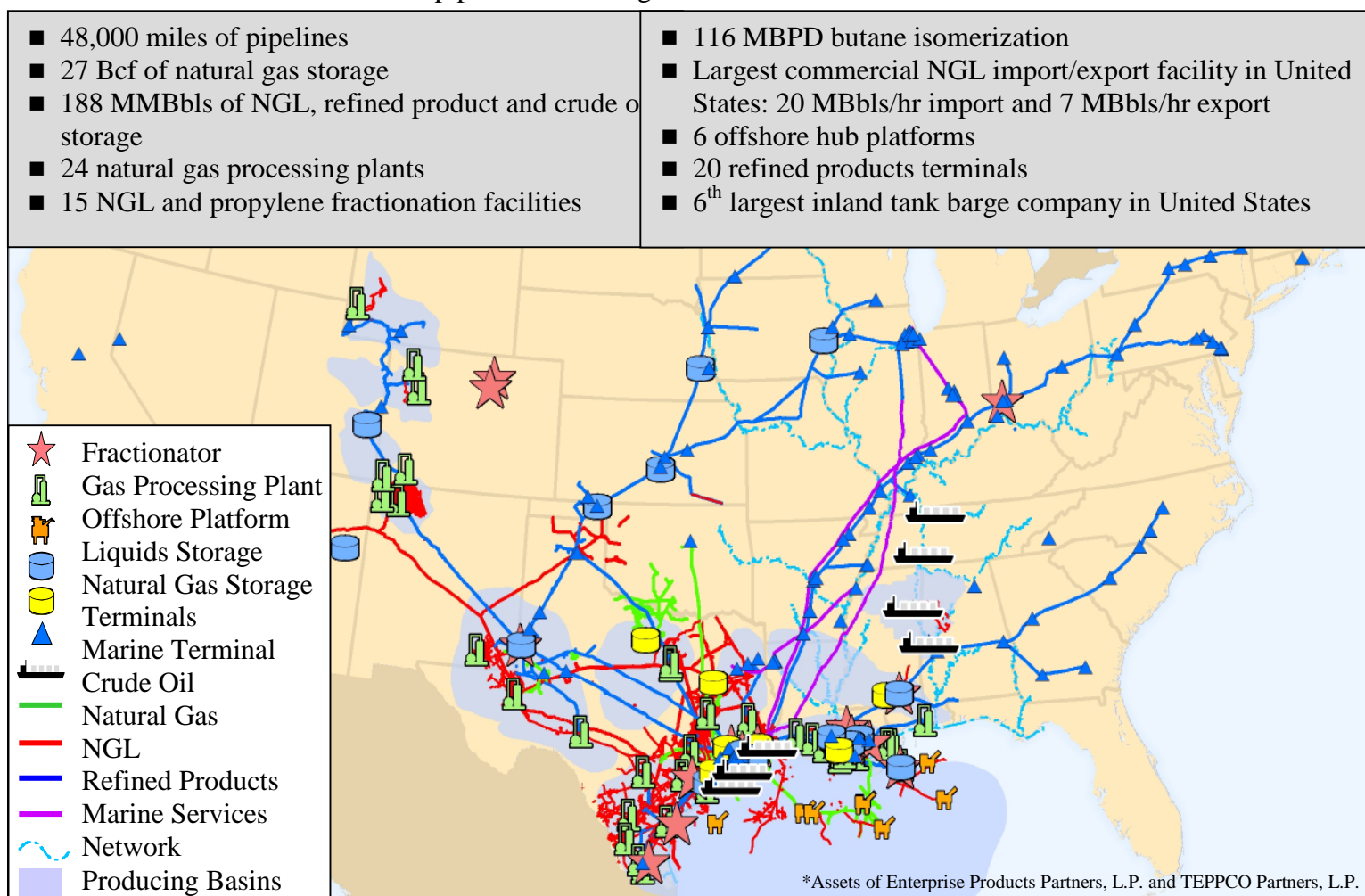
⁴ American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 123 Stat. 115 (2009).

The map below represents Enbridge's current assets (offshore systems are not depicted):



EPCO, Inc. operates a combination of companies that make up one of North America's largest midstream energy networks that includes assets owned and operated by Enterprise Product Partners L.P., TEPPCO Partners L.P., Duncan Energy Partner L.P. and Enterprise GP Holdings L.P. Through its affiliates, EPCO provides services to both producers and consumers of natural gas, natural gas liquids, crude oil, refined products, liquefied petroleum gases and petrochemicals. EPCO operates 19,890 miles of pipeline that deliver natural gas, 16,512 miles

of pipelines to deliver natural gas liquids (“NGL”) and petrochemicals, 5,320 miles of pipelines to deliver crude oil, and 5,464 miles of pipeline to deliver refined products (such as gasoline, diesel and jet fuel) and liquefied petroleum gas (“LPG”). It operates facilities that enable the storage of up to 27 billion cubic feet of natural gas, 14 million barrels of crude oil, 157 million barrels of NGL, 21 million barrels of refined products, and six million barrels of LPG. EPCO controls 24 natural gas processing and treating facilities, 17 natural gas liquids and propylene fractionation facilities, and 20 refined products terminals and provides a wide range of tank truck services, operating more than 1,400 trailers, 850 tractors, and 26 truck terminals. The map below shows EPCO’s substantial pipeline and storage facilities.⁵



⁵ EPCO operates and owns significant equity interests in Enterprise and TEPPCO partnerships.

III. OIL AND GAS PIPELINE DELIVERY REQUIRES BROADBAND SPECTRUM

Enbridge and EPCO's intrastate pipeline systems both gather natural gas from the fields, processes it, and then hand it off to another pipeline company. In addition, both companies own and operate pipelines that carry natural gas, NGLs, crude oil, petrochemicals, oil and other liquid petroleum products interstate and intrastate.

Each of these companies must reliably measure the flow of natural gas, crude oil or the refined products transported along its pipelines. Enbridge's intrastate system may have a total of 10,000 meters that measure such flow, while EPCO's interstate systems has tens of thousands of meters.

To measure gas flow (or the flow of oil, LNG, jet fuel, etc.), these thousands of meters determine the static pressure, the static temperature, and the "pressure differential" across an orifice plate (*i.e.*, a steel plate with a hole in it). With that data, calculations can be performed to determine the flow. Without gathering that data and performing those calculations, the operator cannot know the amount of gas flow at these many thousands of locations, and cannot know whether customers may be receiving too much gas, not enough gas, or even no gas at all. Flow and pressure information also is used to identify the existence of pipeline leaks or other potentially hazardous operating conditions.

Natural gas (or other commodity) will not flow at all without compressors to push it through the pipeline. Enbridge's intrastate system has 450 compressors located throughout the system. EPCO has even more (called "pumps" for liquid fuels). At these compressor sites, gas flow must be measured using meters to collect the information mentioned above. In addition, however, gas quality data is also collected, as is considerable additional information that is

necessary to monitor how the compressor is performing. The speed of the compressor's motor is measured, five to ten different temperatures are measured, and the lubrication and gas pressures on all the cylinders are also measured. With that information, pipeline operators can take whatever action is needed in a timely manner to make the compressor and entire pipeline system perform more efficiently, by shutting down the compressor, for example, or by speeding up the motor to operate at its most efficient speed. These actions not only save energy and improve efficiency but they also increase the amount of gas or liquids that can be transported over the pipeline.

In addition to meters and compressors, pipeline systems also contain numerous sites with control valves and regulators, which enable pipeline personnel in central office locations to control the transportation of the product being sent over the system.

And for safety and security reasons, to prevent trespass, tampering and theft, and to detect fires, spills or potential damage, Enbridge and EPCO have installed cameras to provide real-time monitoring of key locations, like compressor and pump sites, processing plants (which extract natural gas liquids and impurities), fractionation plants (which remove saturated hydrocarbons from natural gas and separate them into distinct parts, or "fractions," such as propane, butane, and ethane), tank battery locations (where liquids are stored after processing), truck terminals, and pipeline locations where routine, necessary gas flaring occurs.

All of this vast amount of data from meters, compressors, valves, monitors, and cameras, and all of the data necessary to operate compressors, valves and monitors, are transmitted over the air via radiofrequency signals. Pipeline companies use wind turbines and solar panels to generate the electricity that powers the radio communications from these remotely-located meters and control devices.

Years ago, before technology developed to allow more efficient operations, pipeline operators collected much more limited information than what is currently collected and much less frequently than the real-time measurements that are taken today. That limited amount of information that was collected years ago could be transmitted using narrowband licensed spectrum that was free from interference.

Those days are gone. High data-rate capacity radios transmitting over broadband frequencies with the operating efficiencies of Internet Protocol technologies are the only feasible means of transmitting the vast amount of data, described above, that is required to maintain the current level of pipeline operation efficiency.

IV. ADDITIONAL BROADBAND SPECTRUM IS NEEDED BECAUSE EXISTING SPECTRUM CANNOT SUPPORT EXISTING OIL AND GAS GATHERING, STORAGE AND DELIVERY REQUIREMENTS MUCH LESS SUPPORT FUTURE TECHNOLOGY IMPROVEMENTS

The technology used to monitor and control the gathering, storage and delivery of oil and gas products has become more and more sophisticated over the years, greatly assisting oil and gas companies to produce and deliver better products with greater safety, and at much higher efficiently and capacity utilization.

As equipment has developed to create more sophisticated and useful data, the communications capabilities needed to transmit that data has necessarily become larger and more robust. The expanded employment of security cameras and other safety measures post-9/11 also has required more advanced communications capabilities.

Narrowband spectrum for years has been incapable of transmitting these increasing data levels. Broadband spectrum is therefore required, and licensed broadband spectrum is simply unavailable for these uses. The solution for Enbridge and EPCO, as for other oil and gas

companies, has been to utilize as best they can the unlicensed broadband spectrum available at 900 MHz, 2.4 GHz, and 5.2/5.3/5.8 GHz.

The problem, of course, with unlicensed spectrum is that anyone can use it. Today, unlicensed spectrum is being used for an ever-expanding number of applications by an ever-expanding number of entities, including not only increasing numbers of oil and gas companies, but also utility companies, Internet service providers, big and small commercial companies, and even the Texas Lottery.

Oil and gas companies that were early adopters of spread spectrum radios in the unlicensed bands now find those bands becoming saturated. Their communications are now subject to more and more interference, with reduced signal-to-noise ratios and greater numbers of dropped data transmissions. The level of interference varies depending on location, but *Alliance* members report certain areas where 900 MHz and 2.4 GHz unlicensed spectrum is useless. There is simply too much interference, too much down time and too many actual and potential disputes with other unlicensed users. The 5.8 GHz channels are now getting crowded.

Spectrum availability for oil and gas companies, in other words, is bad right now and it is just going to get worse.⁶

The practical effects now and in the future for oil and gas pipeline companies are easy to understand. Existing levels of interference has made it impossible for pipeline companies to cover all of the many thousands of meters on their systems because in many areas the distance that signals can reliably be transmitted is too short. At these congested locations, someone

⁶ To compound the problem, the FCC has routinely required private radio users – including oil and gas companies – to vacate spectrum so the Commission could accommodate commercial providers. For example, private microwave operators were required to vacate the 1850-1900 MHz, 2 GHz and 12.2-12.7 GHz bands and private mobile radio operators in the 800 MHz band were relocated and licensing at the 900 MHz band was frozen.

visually inspects these meter sites every couple of weeks to monitor pipeline activity. Gas flow and other problems at these sites therefore cannot be discovered and corrected right away.

Even in areas where all meters are covered, far too many towers are being used than would be necessary if spectrum were available that was not subject to interference, because interference has reduced the reliability of the signal from, for example, 20 miles to 10 miles.

Video cameras cannot be installed at all of the locations that oil and gas pipeline companies would like because the bandwidth capacity currently does not even exist for such additional deployments.

If broadband spectrum were dedicated to oil and gas company uses, these existing capacity problems would be greatly alleviated, and pipeline companies would have greater assurance that they can continue to make the most of existing monitoring and control technologies. Apart from shoring up existing uses, however, dedicated spectrum would dramatically improve existing and future efficiencies and the safety of oil and gas gathering, storage and delivery.

Existing voice communications could be moved to an IP-protocol based system. Many existing sensitive locations identified above are completely dependent on the local phone company for communications, and at some locations there are no phone lines at all. During a natural disaster or terrorist attack, voice service transmitted through a private wireless network could continue to operate even if local phone service goes down.

With dedicated spectrum, mobile data uses also would be possible, enabling oil and gas personnel to carry laptops in their trucks to access critical information regarding the remote locations that they have been sent to investigate or fix. Existing commercial wireless carriers do not cover these remote areas and spread spectrum over saturated unlicensed frequencies is no

solution for mobile applications – a moving vehicle would encounter too much interference as it moves from one area to the next.

Additional video surveillance would be made possible, providing additional security for many sensitive oil and gas industry locations.

Pipeline companies would be able to monitor and control all of the locations on their networks, some of which simply cannot be reached because of existing broadband capacity constraints.

Providing internal voice communications on a private wireless network, the local T-1 phone line could be removed at many smaller locations, and the non-interference protections offered by dedicated spectrum would mean that far fewer tower locations would be required.

Finally, but very importantly, pipeline companies would be able to take advantage of new monitoring and control technologies, enabling more efficient and safer gathering, storage and delivery of oil, natural gas and other petroleum products.

V. CONCLUSION

The Commission is in a unique position to improve efficiencies in energy production and distribution,⁷ and to “advanc[e] ... energy independence and efficiency,”⁸ by alleviating the current shortage of broadband spectrum for the oil and gas industry. By working to dedicate 30 MHz of spectrum for critical infrastructure use by the oil and gas industry, the Commission can allow the oil and gas industry to take full advantage of existing monitoring and control technology, and can greatly assist in generating dramatic future improvements in oil and gas production and distribution, all to the long-term benefit of all Americans.

⁷ *In re A National Broadband Plan for Our Future*, Notice of Inquiry, FCC 09-31, GN Docket No. 09-51, at ¶ 86 (2009).

⁸ American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 123 Stat. 115 (2009).

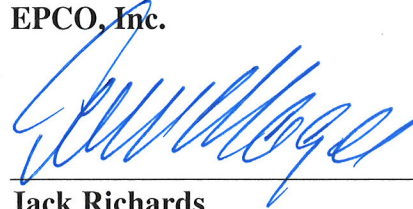
WHEREFORE, THE PREMISES CONSIDERED, the *30 MHz Pipeline Company Alliance* urges the Commission to act in a manner consistent with the views expressed herein.

Respectfully submitted,

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